

Code of practice for

Powered lifting platforms for use by disabled persons

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- Mechanical Handling Engineers Association
- National Association of Lift Makers
- Post Office
- Royal Association for Disability and Rehabilitation
- Scottish Development Department

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Contents

	Page
Committees responsible	Inside front cover
Foreword	ii
1 Scope	1
2 Definitions	1
3 Statutory requirements	2
4 Design considerations	3
5 Building provisions	3
6 Technical features	4
7 Testing, inspection and maintenance	9
8 Acceptance of lifting platform	10
Appendix A Guidance to purchaser	12
Appendix B Typical certificate for test and examination after installation of lifting platform	15
Appendix C Certificate of acceptance by purchaser/user after initial tests and examination	17
Figure 1 — Typical direction label for manual operation	10
Figure 2 — Typical label for safe manual operating instructions	11
Figure 3 — Typical load plate	11
Publications referred to	Inside back cover

Foreword

This British Standard has been prepared under the direction of the Mechanical Engineering Standards Committee. It makes recommendations for the design, selection, installation and maintenance of powered lifting platforms specifically designed for disabled persons. No specific power method is excluded but whatever is provided it should adopt the appropriate minimum safety features recommended in this code, with any other additional safety features appropriate to the particular system.

It is assumed that a powered lifting platform conforming to the recommendations given in this code will be used by persons capable of using it safely and unaided either after having been fully instructed in its use or by means of clear and simple instructions permanently displayed on the equipment. However, persons not so capable may be transported under the care of an able-bodied attendant similarly instructed for which purpose additional control facilities are provided if necessary.

In applying the principles outlined in this code, due consideration should be given always to the siting of the equipment in relation to its proximity to other facilities to avoid hazards, congestion and inconvenience, and in relation to present circumstances and reasonably foreseeable developments. Recommendations for exchange of information between supplier, installer, purchaser and user at the time of ordering to avoid inappropriate siting are also included.

Appendix A gives guidance to assist potential purchasers by drawing attention to further important aspects that should be investigated when considering the installation of a powered lifting platform. This appendix also gives guidance on the provision of operating instructions for users, the services that should be provided and the considerations arising from any variations to the method of use.

Three related standards for similar devices for use by disabled persons in private dwellings have been published, they are:

BS 5776, *Specification for powered stairlifts*.

BS 5900, *Specification for powered homelifts*.

BS 5965, *Specification for manually driven balanced personal homelifts*.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 18, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This British Standard recommends the minimum safety rules for the design, construction, installation, operation and maintenance of fixed powered lifting platforms whose platform may be partially or totally enclosed.

The lifting platforms covered by this code are intended for use solely by disabled persons, whether sitting, standing or within a wheelchair and accompanied by an attendant when necessary, for transportation between fixed levels, which may include intermediate levels, where the maximum height of the platform above the lowest level does not exceed 1.98 m. It is intended that the equipment is for fixed installation and for access to and use in or about private dwellings, private or public buildings and places, and be capable of operation in an indoor environment of normal temperature and humidity or alternatively in an outdoor environment.

This code also details some special features and actions for consideration by purchasers; these can be found in 4.4 and 7.4 and in Appendix A.

NOTE The titles of the publications referred to in this standard are listed on the inside back cover.

2 Definitions

For the purposes of this British Standard the following definitions apply.

2.1

authorized person

a person instructed and authorized to undertake the correct manual operating procedure and to remove persons from the lifting platform in an emergency

2.2

barrier

a device comprising a bar, or assembly of similar elements, so arranged as to protect a landing opening into the liftway when the platform is not at the landing

2.3

brake

an electromechanical mechanism employed to bring the platform to rest smoothly and hold it in position

2.4

buffer

a resilient stop at the end of the travel of the platform or counterweight

2.5

contactor

an electromagnetically operated device for switching a main electrical power circuit

2.6

control device

manually operated switches, push-buttons or other devices used to control the lifting platform

2.7

controller

an assembly of electrical contactors, relays and/or other suitable components mounted within a cabinet, for controlling the lifting platform

2.8

counterweight

a weight or series of weights used to counterbalance the mass of the platform and part of the rated load

2.9

disabled person

a person who has limited mobility

2.10

drive unit

the unit that provides the power to drive the platform

2.11

door

a sliding, folding or hinged device that prevents access between platform and landing

2.12

door lock

a mechanical or electromechanical device used to lock a platform or landing door, the unlocking of which is controlled by the position of the platform

2.13

final limit switch

an emergency switch arranged to stop the platform automatically in the event of the platform travelling a predetermined distance beyond a terminal landing

2.14

guard

a substantially constructed device designed to prevent accidental contact with a potentially dangerous component

2.15

guides

components that guide the platform, and the counterweight (if provided)

2.16

guide shoes or guide rollers

attachments to the platform frame, and to the counterweight (if provided), that provide continuous alignment with the guides

2.17**landing**

the space required at the entrance to the lifting platform at any defined level to permit the manoeuvring, boarding and alighting of users, either with or without a wheelchair

2.18**lifting platform**

a device, permanently installed to serve fixed landing levels where the maximum height of the platform above the lowest level is not greater than 1.98 m, comprising a guided platform whose dimensions and means of construction clearly permit the access of disabled passenger(s) with or without wheelchair(s)

2.19**liftway**

the space through which the platform and its load travels. This space may be contained within the machine itself and/or may be a feature of the building construction

2.20**manual operation**

a method of moving the platform by hand

2.21**platform**

a horizontal structure that moves vertically and supports persons standing, sitting or in a wheelchair

2.22**rated load**

the safe load for which the equipment has been designed and for which normal operation is guaranteed by the vendor

2.23**rated speed**

the maximum raising or lowering speed for which the lifting platform has been designed and for which normal operation is certified by the vendor

2.24**runby**

the maximum distance normally travelled by the platform beyond the terminal level when the platform is brought to rest

2.25**safety factor**

the ratio, for a particular material under stated conditions, of the yield load to the highest load that can be imposed upon a member

2.26**safety gear**

a mechanical device attached to the platform to stop and maintain the platform (and any potentially dangerous counterweight) within the guides in the event of suspension failure

2.27**sensitive edge**

a safety device attached to any edge to obviate a hazard

2.28**sensitive surface**

a safety device similar in effect to a sensitive edge but so arranged to protect a whole surface such as the underside of the platform

2.29**slack rope/chain switch**

a switch or combination of switches, arranged to stop the platform if any of the suspension ropes/chains slacken by a predetermined amount

2.30**stop switch**

a push-button or switch, designed to open the control circuit and so cause the platform to stop

2.31**terminal stopping switch**

a switch or combination of switches arranged to bring the platform to rest automatically at or near a terminal landing level

2.32**travel**

the vertical distance between the top and bottom landing levels served by the platform

2.33**unlocking zone**

a zone, extending above and below the stopping level, in which the platform surface has to be positioned to enable the landing door to be unlocked

2.34**user**

the disabled person(s) for whom the lifting platform is installed

3 Statutory requirements

The following statutory requirements may be applicable to powered lifting platforms, depending upon their location:

- a) the Factories Act, 1961¹⁾;

¹⁾ Copies obtainable from HMSO.

- b) the Offices, Shops and Railway Premises (Hoists and Lifts) Regulations, 1968 (Statutory Instrument 849)²⁾;
- c) the Health and Safety at Work, etc. Act, 1974²⁾.

It is the responsibility of the manufacturer, supplier, purchaser, and any other parties concerned to comply with statutory requirements. Advice should be sought, where necessary, from the Health and Safety Executive or the relevant local authority, as appropriate.

4 Design considerations

4.1 Safety. Protection against all of the following possible hazards should be incorporated in the final installation:

- a) shearing, crushing, trapping or abrading;
- b) falling;
- c) physical shock;
- d) electric shock;
- e) fire, attributable to use of the lifting platform.

4.2 Design features. All components should be correctly designed and of sound construction using materials that are free from patent defects and that are of adequate strength and suitable quality. The construction and reliability of the equipment, in whole or in part, should be appropriate to its intended use, operating environment and design life.

Means should be provided to minimize the transmission of noise and vibration to any surrounding walls and other supporting structures.

Materials used in the construction of the lifting platform should not support combustion.

4.3 Maintainability. The lifting platform should be designed, constructed and installed in such a manner that periodic examination, testing, maintenance or repairs may be readily and safely carried out.

4.4 Additional design features. All relevant information concerning the design features given in a), b) and c) below should be ascertained by the purchaser/installer and conveyed to the manufacturer in order that the appropriate equipment may be supplied.

- a) *Location and environment.* Full details of the location, operating environment and external influences.

NOTE The location should have sufficient space at each level to permit ease of access to the platform and to avoid unduly restricting the expected use of passageways, etc. serving adjacent areas or rooms. (See A.1.3.)

- b) *Construction of building and location* (see also A.1.3). The building construction details where the lifting platform is to be located. This should be checked to ensure that the following requirements are met:

- 1) that the lowest level can support the maximum dynamic loads imposed by the lifting platform structure or guides, and that any walls can support suitable fixings for the structure, guides and enclosure (if required);
- 2) that any breach of sufficient size can be cut in the surrounds without loss of structural integrity;
- 3) that there is sufficient room to locate and give clear access to any components that may require maintenance or replacement;
- 4) that a pit, if required, can be constructed below the lowest level served.

- c) *User(s).* The nature of the disability, the relevant residual function of the user(s) and the need for personal assistance. In addition, where appropriate, whether a walking aid, wheelchair or other physical assistance is normally necessary to be transported with the user(s). (See A.1.1.1)

5 Building provisions

5.1 Lighting. Adequate lighting of the landing area giving access to the liftway at each level should be available at all times (see A.1.3). If required, the inside of an enclosed liftway may be artificially illuminated by a separately fused lighting supply independent of the lifting platform power supply.

5.2 Electrical supply. A dedicated electrical power supply in accordance with the latest edition of the Regulations for Electrical Installations³⁾ published by the Institution of Electrical Engineers should be available that terminates adjacent to the machine controller. (See A.2). This may be a single-phase or three-phase supply according to the electrical load requirement of the lifting platform.

5.3 Obstructions. The space through which the platform and its occupants travel should be free from hazardous obstructions [see 4.1 a) and 6.4.2]. Any boundaries of that space that could present a hazard should form a continuous smooth vertical surface having low frictional resistance. The provision of door furniture or similar devices should be in accordance with the recommendations of 6.5.

²⁾ Copies obtainable from HMSO.

³⁾ Generally known as the "IEE Wiring Regulations".

6 Technical features

6.1 General safety factor. Unless stated otherwise in this code or in the standards referred to in **6.12**, the safety factor for all parts of the equipment should be not less than 3 based on yield, calculated on the basis of maximum imposed forces under safe working load conditions, and taking into account possible asymmetrical and shock loading of the platform.

6.2 Rated speed. The rated speed of the platform should not exceed 0.15 m/s.

6.3 Rated load. The design rating of the lifting platform should be based upon 200 kg per square metre of available floor loading area; the rated load should be not less than 115 kg.

In designing a lifting platform for a particular installation the anticipated most adverse loading conditions should be borne in mind; for example, whether it might be called upon to lift a heavy battery operated wheelchair plus its occupant and also a standing attendant.

6.4 Liftway protection

6.4.1 General. The site selected for the lifting platform will determine the form of liftway protection required. Guidance on the selection of the appropriate method of protection is given in **6.4.2** to **6.4.6**.

6.4.2 Private dwellings. In domestic dwellings it is considered that liftway protection may not be required but the circumstances of the location should be carefully considered to achieve, as far as is reasonably practicable, protection from the hazards listed in **4.1**, for example:

- a) where the lifting platform is designed to be installed in line with and forming part of a short flight of steps, protection may not be required;
- b) where a significant drop has been created by the absence of a step or steps, protection should be provided.

6.4.3 Protection at intermediate and upper landing levels. At intermediate and upper landing levels the majority of installations will require suitable protection to a height of at least 1 m along the edge(s) of each level. The landing area giving access to the platform should be protected by a door, gate or movable barrier (see **6.4.6**).

6.4.4 Protection at lower landing levels. At lower landing levels where the possibility of trapping, shearing or falling can occur, the sides of the liftway should provide protection from such hazards.

6.4.5 Total enclosure

6.4.5.1 General. A totally enclosed liftway may be necessary, for example, to maintain fire resistance standards, to maintain security or to restrict access and use. If total enclosure is necessary the lifting platform should be enclosed throughout its height, without grillework or openings other than for landings or access doors. The construction of the enclosure should conform to the recommendations of **6.4.5.2**.

6.4.5.2 Construction of enclosures. If the protection is to take the form of total enclosure, the enclosure should be of sufficient strength to support itself, and the landing doors and their locking equipment all in true alignment.

The enclosure should withstand the application of a 300 N force evenly distributed over an area of 2 500 mm² in round or square section at any point perpendicular to the surface without excessive or permanent distortion. The enclosure may be constructed of perforated mesh panel, the dimensions of the mesh not exceeding 13 mm square and supported on suitably strong structural framing, provided that in addition to the above recommendations the safety conditions stated in **4.1** are met. (See also **5.3**.)

6.4.6 Openings for access

6.4.6.1 Design. The design of doors, gates and movable barriers should take into account the special needs of disabled persons elaborated in BS 5619 and BS 5810 and be designed to be moved by the application of low manual effort.

The doors, gates or movable barriers in the upper, intermediate and lower landing levels (see **6.4.3** and **6.4.4**) or the doors in the enclosure (see **6.4.5**) should have the same strength as the enclosure recommended in **6.4.5.2**, and not open inwards or downwards. The clear width of the openings should be not less than 750 mm. Vision panels provided in solid doors should be of fire-resistant glass and not larger than 0.01 m².

All door, gate, safety barrier or sensitive edge switches should be of the mechanically operated type whose contacts are mechanically broken to overcome the possibility of a welded contact failing to operate to the break position.

6.4.6.2 Method of operation. Means should be provided to manually or automatically operate the doors, gates and movable barriers. Whatever the design the means provided should meet the needs of wheelchair users. The devices provided should be placed within the height of the opening and generally 1 000 mm to 1 100 mm above platform or landing surface.